

REMARKS

Applicants have carefully reviewed and considered the Examiner's Action mailed May 9, 2007. Reconsideration is respectfully requested in view of the foregoing amendments and the comments set forth below.

By this Amendment, independent claims 1, 5, 11 and 17 are amended, and new claims 21-23 are presented. Accordingly, claims 1, 3-5, 7-12, 14-17 and 19-23 are pending in the present application.

Applicants thank Examiner Harmon for the courtesies extended to his representative during the September 20, 2007 telephonic interview. During the interview, draft, revised apparatus claims 11 and 21 and draft, revised method claims 1 and 5 were discussed. In particular, Examiner Harmon stated that the claims should positively recite inner and outer elements of the separating device so that it was clear that the fibers to be separated are fed between the two elements in the separating device. In addition, the Examiner mentioned that the counter rotation of the inner and outer rotating elements shown in the drawings of the application should be defined in the claims. Applicants's representative emphasized that the applied references of Teed, Pall, Radwanski, and others only disclosed a device with a single rotating element and no outer drum. The Examiner agreed that the applied prior art did not disclose a separating device comprising an outer drum and an inner rotating element.

Claims 1, 7, 11-12, and 14-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,857,657 to Teed in view of U.S. Patent No. 4,116,738 to Pall or U.S. Patent No. 4,973,503 to Hotchkiss. This rejection is respectfully traversed.

Teed is directed to a fiberizing and pad forming apparatus that employs a fiberizing device 20 for breaking a sheet S of pulp-fibers into substantially individual fibers F (column 4, lines 6-10 of Teed). While fiberizing device 20 may rotate, it does not receive fibers in a parallel direction of the rotational axis of device 20, as required by claims 1, 5 and 11 of the present application. Nor does fiberizing device 20 have an outer drum and an inner rotating element that rotates within the outer drum. As the Examiner acknowledges, Teed discloses that the sheet S of pulp-fibers is introduced perpendicular to the periphery of device 20 so that teeth 21 (Fig. 3) or cylindrical discs 22 (Fig. 2) break the sheet into individual fibers. Instead of an outer drum, Teed discloses a stationary housing 10 that is “J”-shaped as shown in Figure 3.

It is the Examiner’s position that “air tunnel 50 [of Teed] acts as a second separating device for separating fibers and distributing over the surface of conveyor 30.” However, air tunnel 50 is stationary (does not rotate) and thus, does not have an inner rotating element. Thus, air tunnel 50 of Teed cannot be a recited separating device. Consequently, as amended, air tunnel 50 cannot be considered a second separating device because it does rotate; it does not have inner rotating element and an outer drum; and it does not separate the individual fibers into further individualized fibers, but allows the fibers to be fed to a conveyor to form a pad.

Pall or Hotchkiss are applied because they allegedly disclose fibers being introduced “in the direction of the longitudinal axis of the separating device”. It is unclear how the fiberizing and pad forming apparatus of Teed would work if the sheet of wet-pressed pulp fibers was introduced in a parallel direction of the fiberizing device 20. It is submitted that in order for the apparatus taught by Teed to function, the sheet would

have to be introduced perpendicular to the rotational axis of the fiberizing device.

Neither Pall or Hotchkiss shed any light on how fibers would be separated if introduced in a parallel direction of the rotational axis of the separating device.

Figure 1 of Pall is directed to producing cylindrical filter elements upon a rotating array of interlocked modular preformed tubular core lengths. That is, Pall teaches feeding fibers perpendicularly upon a rotating array of core lengths. There is no separation of fibers occurring after the introduction of fibers in any of the Figures of Pall. Likewise, there is no outer drum in which a rotating element rotates in order to separate fibers are required by independent claims 1, 7 and 11.

Hotchkiss is directed to a method of making mixed fiber tow or tube. While fibers 32 are introduced in a parallel direction of an air tunnel. The air tunnel does not rotate only the rod 138 rotates and there is no separation of the introduced fibers into individualized fibers in the at least one separating device with a rotational axis. Thus, Hotchkiss, at most, simply discloses introducing fibers into rotating melt-blown fibers 311. This is not the recited “separating the introduced fibers ... in the ... at least one separating device having an outer drum and at least one inner **separating** element rotating about the rotational axis”, as recited in independent claim 1 (and similarly recited in claim 11).

It is respectfully submitted that one of ordinary skill in the art would not have expected a combination of the fiberizing and pad forming apparatus disclosed by Teed and the construction of a tubular filter as taught by Pall or the creation of a mixed fiber tow taught by Hotchkiss to achieve the claimed invention. Withdrawal of the rejection of claims 1, 7, 11-12, 14-15 under 35 U.S.C. §103 (a) is respectfully requested.

Claims 1, 7, 11-12, and 14-16 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,701,294 to Radwanski et al. (hereinafter referred to as “Radwanski”) in view of U.S. Patent No. 4,116,738 to Pall or U.S. Patent No. 4,973,503 to Hotchkiss. This rejection is respectfully traversed.

Radwanski is directed to an educator airforming apparatus where frangible material 16 is moved along an inlet channel 12 until it intersects perpendicularly with a rotatable drum 14 and then the material 16 is moved along the outer periphery of the drum 14. Movable striking elements, such as hammer elements on rotatable drum 14, are located in a fiberizing zone 26A, which is on the outside the periphery of rotatable drum 14. Thus, Radwanski does not disclose “introducing fibers with a finite length to at least one separating device having a rotational axis, said fibers being introduced in a parallel direction of the rotational axis of the at least one separating device” where the separating device has an outer rotating drum and an inner rotating element rotating within the outer rotating drum, as required by independent claims 1 and 11. Nor does Radwanski disclose a separating device having an inner rotating element and an outer drum, as required in independent claims 1, 7, and 11.

Instead, Radwanski discloses an embodiment in which the movable striking means comprises a generally cylindrical hammer drum 14 which is rotatable about an axle 56 in the direction indicated by arrow 90. While the drum is rotatable and it has hammer striking means to separate fibers, there is no outer drum as required by the claimed invention. Furthermore, a gas delivery means, such as a gas inlet conduit 34, directs gas through a distributor housing 10. Essentially all of the injected gas stream entraining the fibers moves along a path that is substantially co-directional (i.e.,

perpendicular) with the movement direction of the hammer elements on drum 14. See column 4, lines 4-20 and 61-64 and column 6, lines 44-48 of Radwanski. That is, contrary to the recited invention in claims 1 and 11, Radwanski discloses introducing the fibers in a direction **perpendicular** to the longitudinal axis of the hammer drum or a separating device and the fibers are not separated in the at least one separating device with a rotation axis (but outside the separating device). Consequently, Radwanski fails to teach more than the recited language acknowledged in the Action as being missing.

As argued above, neither Pall nor Hotchkiss disclose an outer drum or introducing fibers in a parallel direction of the rotational axis of a separating device. In fact, neither Pall nor Hotchkiss is directed to separating fibers so that they can be poured on in a particularly uniform manner as described in paragraph [0009] of the present specification. Consequently, neither Pall nor Hotchkiss render obvious a method where the fibers are introduced in a parallel direction of the rotational axis of a separating device or the recited machine for producing a nonwoven. Withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

Claims 1, 3-5, 8-10, 16-17 and 19-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over GB 2145918 to Arthur et al. (hereinafter referred to as “Arthur”) in view of Teed or Radwanski and Pall as explained in paragraph 5 of the Action. This rejection is respectfully traversed.

Arthur, like Teed and Radwanski, introduces material in a direction perpendicular to the longitudinal axis of the pin roller 16, 146, 144. Independent claims 1, 5 and 17 positively recite that the direction of the introduction of the fibers is parallel to the rotational axis of the separating device. In that Arthur, as well as the two secondary

references, teach introducing material transverse to the longitudinal axis of the separating device, one of ordinary skill in the art would not have been motivated to modify Arthur as claimed by Applicants as there is no teaching of a method or arrangement where fibers are introduced into a separating device including an outer separating drum and an inner separating drum rotating within the outer separating drum in a parallel direction of the rotational axis of the separating device, as required by the claimed invention.

The third combined reference to Pall does not disclose the recited outer separating drum or separation of fibers in a separating device. Consequently, it is respectfully that one of ordinary skill in the art employing commonsense would not have combined fibers being introduced as taught by Pall with a device that needs to have the fibers introduced perpendicularly to the rotating drum. It is respectfully submitted that there is no expectation of success in combining two different methods to achieve the claimed invention.

With respect to independent claim 17, it is the Examiner's position that "conveying chute (not labeled) is positioned above rotational elements 144, 146 [of Arthur]" (page 4, lines 10-11 of paragraph 5 of the Action). It is unclear how the alleged conveying chute of Arthur can be positioned above the rotational elements when claim 17 recites that a conveying chute is provided downstream of each separating device. How can an element above rotational elements 144 and 146 be provided downstream of the rotational elements? Thus, it is submitted that Arthur fails to disclose the recited conveying chute and none of the references in the combination teaches the recited conveying chute.

No where does any of Teed, Radwanski, or Pall disclose, teach or suggest a separating device having a rotational axis, an outer separating drum and an inner separating element where the rotational axis is parallel to the conveying direction where the fibers are introduced in the parallel direction of the rotational axis of the at least one separating device and fibers are separated into individualized fibers in the at least one separating device, as required by the independent claims. As discussed above, the rotating drums of Arthur, Teed, and Radwanski separate fibers that are fed in a perpendicular direction outside the separating drum (not within the separating drum as recited in the claims). This is not the claimed invention and a disclosure of fibers being introduced in the parallel direction of the rotational axis of the separating device, even if combined with a perpendicular introduced fibers, would not achieve a device that functions as claimed.


In addition, dependent claims 21-23 recite that the outer drum rotates in a direction counter to that of the inner rotating element of the separating device. None of the prior art of record discloses the claimed structure of a separating device having an outer drum and an inner rotating element, let alone an outer drum that rotates in one direction, while the inner rotating element of the separating device rotates in the opposite direction.

In view of the foregoing, it is respectfully submitted that claims 1, 3-5, 7-12, 14-17 and 19-23 are allowable over the prior art of record. Reconsideration of the application and an issuance of a Notice of Allowance are earnestly solicited.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

Respectfully submitted,

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